IN THE CLAIMS

The current claims follow. For claims not marked as amended in this response, any difference in the claims below and the previous state of the claims is unintentional and in the nature of a typographical error.

1. (Currently Amended) For use in a wireless network, a base station capable of serving multiple mobile stations, said base station comprising:

a transceiver operable to receive from a select one of the multiple mobile stations a value of a first pilot strength signal and a value of a second pilot strength signal over a beam update time and multiple power control signals during said beam update time; and

beam forming circuitry operable to calculate a differential pilot strength corresponding to a difference between a value of said first pilot strength signal and a value of said second pilot strength signal, to calculate a differential power control corresponding to two or more of said multiple power control signals, and to form a downlink traffic beam spatially directed to serve said select one of said multiple mobile stations, said downlink traffic beam having a beam width set as a function of said differential pilot strength and said differential power, wherein said function comprises an algorithm that uses that uses at least two possible beam widths, and wherein the function generates a value that indicates if the beam width should be increased, decreased, or remain the same.

2. (Original) The base station as set forth in Claim 1 further comprising an adaptive antenna array connected to said beam forming circuitry to facilitate forming of said downlink beam by said beam forming circuitry.

3. (Original) The base station as set forth in Claim 1 wherein said beam forming circuitry comprises traffic beam forming circuitry operable to form said downlink traffic beam and pilot beam forming circuitry operable to form a pilot beam serving said multiple mobile stations.

4. (Original) The base station as set forth in Claim 3 wherein said pilot beam has a beam width wider than said beam width of said traffic beam.

5. (Original) The base station as set forth in Claim 3 wherein said pilot beam carries a pilot signal for use by said multiple mobile stations, said pilot strength signal being generated by said select one of said multiple mobile stations in response to said pilot signal received by said select one of said multiple mobile stations.

6. (Original) The base station as set forth in Claim 3 wherein said traffic beam carries a traffic signal associated with said select one of said multiple mobile stations, said power control signal being generated by said select one of said multiple mobile stations in response to said traffic signal received by said select one of said multiple mobile stations.

7. (Original) The base station as set forth in Claim 6 wherein said power control signal requests said base station to increase or decrease the power of said traffic signal.

8. (Original) The base station as set forth in Claim 1 wherein said power control signal comprises a digital gain unit.

9. (Canceled).

10. (Previously Presented) The base station as set forth in Claim 1 wherein said multiple power control signals are received every 1.25 msec and wherein said beam update time is 100 msec.

11.-13. (Cancelled).

14. (Previously Presented) The base station as set forth in Claim 1 wherein beam forming circuitry is further operable to decrease the beam width of said traffic beam when said differential power control is equal to 0 or -1.

15. (Previously Presented) The base station as set forth in Claim 1 wherein said beam forming circuitry is further operable to increase the beam width of said traffic beam when said

differential power control is equal to +1 and said differential pilot strength is equal to +1 and decrease the beam width of said traffic beam when said differential power control is equal to +1 and said differential pilot strength is equal to 0 or -1.

16. (Currently Amended) A wireless network comprising a plurality of base stations, each one of said base stations capable of serving multiple mobile stations, said each base station comprising:

a transceiver operable to receive from a select one of the multiple mobile stations a value of a first pilot strength signal and a value of a second pilot strength signal over a beam update time and multiple power control signals during said beam update time; and

beam forming circuitry operable to calculate a differential pilot strength corresponding to a difference between a value of said first pilot strength signal and a value of said second pilot strength signal, to calculate a differential power control corresponding to two or more of said multiple power control signals, and to form a downlink traffic beam spatially directed to serve said select one of said multiple mobile stations, said downlink traffic beam having a beam width set as a function of said differential pilot strength and said differential power, wherein said function comprises an algorithm that uses that uses at least two possible beam widths, and wherein the function generates a value that indicates if the beam width should be increased, decreased, or remain the same.

17. (Original) The wireless network as set forth in Claim 16 wherein each said base station further comprises an adaptive antenna array connected to said beam forming circuitry to facilitate forming of said downlink beam by said beam forming circuitry.

18. (Original) The wireless network as set forth in Claim 16 wherein said beam forming circuitry comprises traffic beam forming circuitry operable to form said downlink traffic beam and pilot beam forming circuitry operable to form a pilot beam serving said respective multiple mobile stations.

19. (Original) The wireless network as set forth in Claim 18 wherein said pilot beam has a beam width wider than said beam width of said traffic beam.

20. (Original) The wireless network as set forth in Claim 18 wherein said pilot beam carries a pilot signal for use by said respective multiple mobile stations, said pilot strength signal being generated by said select one of said multiple mobile stations in response to said pilot signal received by said select one of said multiple mobile stations.

21. (Original) The wireless network as set forth in Claim 18 wherein said traffic beam carries a traffic signal associated with said select one of said multiple mobile stations, said power

control signal being generated by said select one of said multiple mobile stations in response to said traffic signal received by said select one of said multiple mobile stations.

22. (Original) The wireless network as set forth in Claim 21 wherein said power control signal requests said respective base station to increase or decrease the power of said traffic signal.

23. (Original) The wireless network as set forth in Claim 16 wherein said power control signal comprises a digital gain unit.

24. (Canceled).

25. (Original) The wireless network as set forth in Claim 16 wherein said multiple power control signals are received every 1.25 msec and wherein said beam update time is 100 msec.

26-28. (Canceled).

29. (Previously Presented) The wireless network as set forth in Claim 16 wherein beam forming circuitry is further operable to decrease the beam width of said traffic beam when said differential power control is equal to 0 or -1.

30. (Previously Presented) The wireless network as set forth in Claim 16 wherein said beam forming circuitry is further operable to increase the beam width of said traffic beam when said differential power control is equal to +1 and said differential pilot strength is equal to +1 and decrease the beam width of said traffic beam when said differential power control is equal to +1 and said differential pilot strength is equal to 0 or -1.

31. (Currently Amended) For use in a base station capable of serving multiple mobile stations, a method of controlling the beam width of a downlink traffic beam spatially directed to serve a select one of said multiple mobile stations, the method comprising the steps of:

receiving from said select one of said multiple mobile stations a value of a first pilot strength signal and a value of a second pilot strength signal over a beam update time multiple power control signals during said beam update time;

calculating a differential pilot strength corresponding to a difference between a value of said first pilot strength signal and a value of said second pilot strength signal;

calculating a differential power control corresponding to two or more of said multiple power control signals; and

forming said downlink traffic beam with a beam width set as a function of said differential pilot strength and said differential power control, wherein said function comprises an algorithm that uses that uses at least two possible beam widths, and wherein the function generates a value that indicates if the beam width should be increased, decreased, or remain the same.

32. (Original) The method as set forth in Claim 31 wherein said forming further comprises using an adaptive antenna array to facilitate forming of said downlink beam.

33. (Original) The method as set forth in Claim 31 further comprising forming a pilot beam carrying a pilot signal serving said multiple mobile stations, said pilot beam having a beam width wider than said beam width of said traffic beam.

34. (Original) The method as set forth in Claim 33 wherein said receiving further comprises receiving said pilot strength signal generated by said select one of said multiple mobile stations in response to said pilot signal received by said select one of said multiple mobile stations.

35. (Original) The method as set forth in Claim 31 wherein said receiving further comprises receiving said power control signal generated by said select one of said multiple mobile stations in response to a traffic signal carried by said traffic beam and received by said select one of said multiple mobile stations.

36. (Canceled).

37.-39. (Canceled).

40. (Previously Presented) The method as set forth in Claim 31 wherein said forming further comprises decreasing the beam width of said traffic beam when said differential power control is equal to 0 or -1.

41. (Previously Presented) The method as set forth in Claim 31 wherein said forming further comprises:

increasing the beam width of said traffic beam when said differential power control is equal to +1 and said differential pilot strength is equal to +1; and

decreasing the beam width of said traffic beam when said differential power control is equal to +1 and said differential pilot strength is equal to 0 or -1.

42. (Previously Presented) The base station as set forth in Claim 1 wherein said differential power control is calculated corresponding to a cumulative value of all of said multiple power control signals.

43. (Previously Presented) The base station as set forth in Claim 1 wherein said differential power control is calculated corresponding to a difference between a value of a first one of said power control signals and a value of a second one of said power control signals.

44. (Previously Presented) The wireless network as set forth in Claim 16 wherein said differential power control is calculated corresponding to a cumulative value of all of said multiple power control signals.

45. (Previously Presented) The wireless network as set forth in Claim 16 wherein said differential power control is calculated corresponding to a difference between a value of a first one of said power control signals and a value of a second one of said power control signals.

46. (Previously Presented) The method as set forth in Claim 31 wherein calculating a differential power control comprises calculating a cumulative value of all of said multiple power control signals.

47. (Previously Presented) The method as set forth in Claim 31 wherein calculating a differential power control comprises calculating a difference between a value of a first one of said power control signals and a value of a second one of said power control signals.